

RESTRUCTURING AGRICULTURAL DELIVERY SYSTEMS

IN SUB-SAHARAN AFRICA :

A CASE STUDY OF ZIMBABWE

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ABSTRACT: The thesis of the paper is that African smallholders, while numerically dominant in the agricultural systems of the continent, have been largely ignored in the evolution of agricultural policy. With respect to the provision of delivery systems, governments have typically favoured the establishment of parastatal boards. The evidence suggests that these boards have performed poorly. Case studies of parastatals in Zimbabwe are used to illustrate how, in terms of delivery systems, it is necessary to mobilise both producer initiative and government resources in order to devise systems that effectively and efficiently serve the smallholder producer. The argument is developed that the effectiveness of agricultural delivery systems can be substantially improved by changing the role of the state in their operation from that of manager to that of referee.

Introduction

The thesis of this paper is that delivery systems for agricultural producers in Africa have been developed mainly to serve large-scale agriculture. The specific needs of smallholder producers, who are numerically dominant in the region, have not been adequately considered and, it is this disregard for the significance of smallholder producer that underlies the decline of agriculture in the region. Using Zimbabwe as a case study, examples of government intervention in agricultural delivery systems are discussed with particular reference to adopting this intervention more effectively to serve Zimbabwean smallholders. The general principle which is suggested is that the complexity of administering smallholder

agricultural delivery systems is beyond the technical and manpower capacity of African governments. The Zimbabwe case studies will be used to illustrate that by acting as the regulator, rather than the manager, of smallholder agricultural delivery systems, the state can significantly improve the effectiveness of these systems as a tool for rural development.

The Nature of Existing Agricultural Delivery Systems in Eastern and Southern Africa

The design of effective delivery systems for smallholders is complex. The environment in which the systems must operate consists of dispersed production units, with low levels of money income, savings and capital. Both purchases of inputs and sales of outputs will be small and highly variable between seasons. The biological and seasonal nature of agricultural production, combined with poor communications and limited infrastructure adds further complexity.

As illustrations, while the development of the National Agricultural Marketing Board and co-operative marketing union depots in Zambia has been impressive, inputs still consistently arrive late, or not at all. In consequence, their value to the farmer is severely reduced. This problem is further compounded by the uncertainty, and the waste of scarce labour time, involved in fruitless visits to the depot (Elliot). In Tanzania, the well-managed Tanzania Rural Development Bank (TRDB) provides credit for fertilizer but does not manage the physical distribution of the commodity. Late delivery of fertilizer and excessive lags between payment and delivery have depressed demand for fertilizer, particularly in the more remote and needy areas. Hence, the TRDB operates below optimum efficiency and

the crop yield increases are disappointingly below forecast levels.

The effectiveness of agricultural delivery systems and the overall performance of the smallholder sector are closely related. Credit, delivered in the absence of complementary research and extension packages, typically results in a high default rate and a consequent sharp increase in the cost of operating the credit service. Where crops are marketed through parastatals facing cash flow problems, slow payment both to the farmer and the credit agency depresses the value of the crop to the farmer and increases the cost of both credit and marketing services. Farmers, in response, will start to use inputs supplied on credit on crops marketed through informal channels, increasing the problems of both the crop parastatal and the credit agency. Ellis has documented the decline in cashewnut production in Tanzania as the consequence of confidence in the payment and grading system.

From the macro perspective, major constraints on the development or improvement of agricultural delivery systems in Africa are foreign exchange (which particularly affects the availability of key resources such as fuel, transport and agricultural chemicals), trained manpower, revenue for recurrent as well as capital costs and appropriate development orientated research. Unless national governments design systems which make efficient use of foreign and local currency and of skilled manpower, the evidence suggests that the formal delivery systems rapidly become wasteful, exploitative and, in consequence, depress rather than stimulate agricultural production.

Typically, agricultural research and training services are starved of funds while marketing and credit services are high-cost,

inefficient and fail to reach the weakest and neediest groups in the countryside.

For example, the major element of public expenditure on Zambian agriculture is grants and subsidies to parastatals, ranging from one half to four-fifths of the total. There is also an additional element of subsidy to these bodies direct from the Ministry of Finance, adding further to the financial drain caused by these bodies (IFAD). Ninety per cent of capital expenditure in agriculture in Tanzania over the period 1975/76 to 1981/82 was allocated to crop parastatals. Over the same period, research received 2 per cent.

The centralised nature of the typical parastatal delivery system requires a high degree of skill, experience and management. All too often, the demands of the parastatals for such inputs exceed the available supply. This problem is further compounded by the fact that, given the poor internal communications and the cost, in both time and money of internal travel, management and policy decisions regarding agricultural parastatals are taken remote from the field. Centralised control of agriculture is unlikely to succeed in a situation where trained and experienced manpower is scarce, infrastructure is poorly developed and climate is highly variable both within and between years. The scarcity of manpower together with the urban bias of African development strategies has resulted in the agricultural sector of many nations failing to receive appropriate and requisite resources. As a typical example, in Tanzania the industrial sector contributes 10 per cent to gross domestic product as opposed to agriculture's 45 per cent but the industrial sector had, in 1980, 139 accountants as compared with agriculture's 45 (United Republic of Tanzania, 1980).

The analysis of existing systems suggests their costs are excessive relative to the development benefits accruing from their operations. The evolution of informal systems to overcome the deficiencies inherent in official systems has been widespread over the region, indicating a clear desire by the smallholder producer for more effective delivery services. Smuggling and unofficial marketing of agricultural commodities are regularly reported as significant economic activities throughout Africa (see, for example, The Economist 1980, 1981, 1982a, 1982b and Eicher and Baker pp 53-57 for a review of the development of unofficial marketing in Africa). From Zambia, Elliot reports increasing evidence of the growth in informal markets. While traditional crops and vegetables have always been sold in village markets, there has developed over the past 10 years a lively unofficial market in products in which the National Agricultural Marketing Board has a monopoly. Similarly, the Tanzania government reports :

"In principle, Government, through the National Milling Company, has a monopoly in trade in the main cereals In practice, a considerable trade takes place outside official channels in local markets and on an inter-district and inter-regional basis at unofficial prices which have diverged substantially from official prices" (United Republic of Tanzania, (1982) para 3.01).

It is both surprising and encouraging to observe that, after decades of official discouragement, that African smallholders actively seek to develop and use informal delivery systems where official formal systems fail to serve the needs of the rural communities.

Underlying the problems faced by official agricultural delivery systems in Eastern and Southern Africa is the fact that these systems remain primarily orientated to the needs of the large-scale producer. Regardless of the conceptual soundness and egalitarian basis for development strategies, effective implementation requires the sensitive and efficient co-ordination of macro-planning with the micro-decisions of individuals within the economy. Centralised parastatal organisations are the institutional form commonly used by African governments to provide this linkage. These bodies have been the recipients of high levels of both local and donor funds, yet have widely failed to operate effectively in the field (Elliot; World Bank). Succeeding sections will argue that the design of such systems is inappropriate to the needs of a significant and neglected client group; the African smallholder. If it is in increased smallholder production that the answer to Africa's agricultural problems lies, then fundamental to the solution is a shift in the perspective of planners from dominating to guiding smallholders. (The reader is referred to Eicher and Baker; Fei and Ranis; Frank; Ghai and Radwan; Low; Murray; Putterman; Thomas; and World Bank, for detailed discussion on the significance of smallholder agriculture in agrarian development in Africa.) Independent African nations have a surprising tendency to follow the example of their colonial predecessors in using regulations to administer smallholder agricultural production. The reaction of the smallholders is consistently to circumvent or, at worst, resist such authority (see, for example, Callear; Coulson; Ellis; and Hyden). In the following sections, the design of appropriate delivery systems for smallholders is discussed in more detail based primarily on data and experience from Zimbabwe.

Agricultural Delivery Systems in Zimbabwe

In reviewing agricultural marketing policy for Zimbabwe, the Chavunduka Commission noted the poor performance of parastatal marketing bodies elsewhere in Africa. However, it went on to observe :

"Zimbabwe's marketing boards have not grown from the same roots as similar organisations in most other parts of Africa. In Zimbabwe, the need for controlled marketing was recognised by producers. Producers have considerable influence on both the policy and the general management of the boards. This contrasts with the situation in many other territories where marketing boards were set up on the initiative of the state and where producer representation tends to be weak or ineffective. The Commission felt that the efficiency of operation of the parastatal marketing boards in Zimbabwe derived to a considerable extent from the strength of producer representation" (Chavunduka, p. 102 (emphasis added)).

In terms of their use of producer representation, Zimbabwe's parastatals provide a useful model. However, parastatal development in Zimbabwe has also largely revolved around the needs of large-scale farmers. With independence, these organisations face the need to service small-scale agriculture to a greater extent than in the past. Zimbabwe is, without question, substantially better endowed with trained manpower at independence than its northern neighbours, but in setting national policy, it faces a constraint typical of the region. There is dearth of experienced and senior officials familiar with a dynamic and productive smallholder agriculture. The experienced, educated, and productive farmer, who played a major role in the development of policy for the large-scale sector, does not have a counterpart in the smallholder subsector. The direct

link between the farmer and national government has been central, not only to the development of large-scale agriculture in Zimbabwe, but also to the evolution of highly productive agricultural sectors in such recently settled nations as Australia, New Zealand and the United States. There exists in Zimbabwe no smallholder agricultural pressure group such as the agricultural lobby in the U.S. or the EEC. This is not to denigrate the activities of existing smallholder organisations such as the National Farmers' Association of Zimbabwe (NFAZ). It is, however, a reality that typically these organisations lack the income to employ their own policy advisors and thus operate at a severe disadvantage, in situations such as price negotiations, relative to government ministries, parastatals and large-scale farmer organisations.

Non-food Crop Marketing : The Zimbabwe Cotton Marketing Board: The Cotton Marketing Board (CMB) in Zimbabwe provides a specific model of co-operation between state and private enterprises in agricultural marketing where the state allows the private sector to operate much of the marketing chain under carefully devised and monitored rules. Cotton production has increased dramatically since 1965 and cotton is now Zimbabwe's second largest export crop. By 1980, cotton production accounted for 10 per cent of commercial agricultural output (see Tables 1 and 2). Associated with the growth in overall cotton production has been a continuing rise in smallholder cotton production. The value of cotton as a smallholder cash crop had been appreciated by policy-makers and active efforts were made to encourage its production in the smallholder sector. The outcome has been an exceptional response by smallholders. For example, smallholder production more than doubled to 77 023 tonnes between the years 1980 and 1981. The estimate for the 1983 season suggests

further increases from the smallholder sector (Agricultural Marketing Authority). To a considerable extent, the remarkable development of the cotton industry in Zimbabwe is the outcome of a highly sophisticated and responsive marketing system unique amongst cotton producing nations.

The CMB's responsibilities and functions include :

- (1) the purchase and storage of all seed cotton grown in Zimbabwe;
- (2) processing or 'ginning' the cotton and marketing the resulting products of lint and cottonseed;
- (3) ensuring the adequate supply of certified planting seed for all cotton growers in Zimbabwe.

In order to enable the CMB to carry out these functions efficiently, appropriate legislation has been passed to control a variety of aspects of cotton production. All cotton growers must register with the CMB and large producers must adhere to a delivery quota system to ensure orderly throughput in the ginneries. Grading standards are classified and there is a system established to obtain crop and other information from both growers and the trade. The varieties of cotton that may be grown are controlled by the Board. Under the Seeds Act, the Board is a Certifying Agent for the seed certification scheme. It also acts for the Zimbabwe Government in the collection of statutory levies from growers (Cotton Marketing Board, 1982a).

The CMB operates ginnery depots at Kadoma, Chegutu, Banket, Glendale, Shamva, Tafuna and Mutare which receive and process cotton from growers. A further private ginnery at Triangle

operates on an agency basis for the Board. For growers in the remote areas of the country, there are a number of transit depots where cotton is received and graded. Cotton delivered to these depots is bulked and later delivered to the appropriate ginnery for processing.

By world standards, Zimbabwe is a small producer. Although world cotton production and consumption grew steadily during the late sixties and early seventies, the recession since 1974 has depressed demand. Latest reports indicate that production and consumption are once more in balance but there remains a considerable stockpile of unsold cotton, particularly in the United States, which can be expected to depress market prices over the next few years (Agricultural Marketing Authority). Zimbabwe, however, consistently sells all cotton produced.

The CMB's typical customer is producing a high quality, fine, strong yarn which is usually 100 per cent cotton. This yarn is then woven or knitted into high quality fabrics using fully automated and capital intensive equipment (Cotton Marketing Board, 1982b). Such customers require, and will pay for, lint of consistent and known characteristics. The CMB has located a specific market segment for its product and does not compete against the enormous production of such countries as the United States and the USSR. The entire production and marketing system - grower, researcher, extension worker, buyer and exporter - is designed so as to meet the requirements of this specialist market.

The Board operates through a single broker, the privately owned Zimbabwe Cotton Corporation (ZCC). The broker is an integral part of the Zimbabwe cotton industry and, therefore, acts

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TABLE 1

VALUE OF COMMERCIAL AGRICULTURAL OUTPUT IN ZIMBABWE BY COMMODITY

<u>Commodity</u>	<u>1965</u>		<u>1975</u>		<u>1980</u>	
	<u>Z\$ (m)</u>	<u>%</u>	<u>Z\$ (m)</u>	<u>%</u>	<u>Z\$ (m)</u>	<u>%</u>
Tobacco	71	57	59	17	99	17
Cotton	1	1	32	9	56	10
Sugar	12	10	55	16	91	15
Coffee	..	..	4	..	12	2
Maize	10	8	59	17	82	14
Wheat	..	..	13	4	21	4
Soyabeans	..	..	3	1	14	2
Beef	19	15	60	17	88	16
Pigs	3	2	5	2	7	1
Milk	5	4	14	4	27	5
Other	3	3	45	13	82	14
	<u>124</u>	<u>100</u>	<u>349</u>	<u>100</u>	<u>579</u>	<u>100</u>

.. Insignificant (less than 0,5 per cent)

Source: Central Statistical Office, Zimbabwe.

Z\$1.00 is approximately US\$1.00 (December, 1983)

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TABLE 2

ZIMBABWE : AGRICULTURAL EXPORTS

<u>Commodity</u>	<u>1965</u>		<u>1975</u>		<u>1980</u>	
	<u>'000t</u>	<u>Z\$ (m)</u>	<u>'000t</u>	<u>Z\$ (m)</u>	<u>'000t</u>	<u>Z\$ (m)</u>
Tobacco	119	93	56	65	93	118
Cotton	-	-	33	19	54	57
Sugar ^a	277	8	157	43	166	47
Coffee/Tea	1	...	8	7	9	13
Maize	8	1	842	47	63	7
Meat ^b	16	8	41	24	13	14
Hides	6	1	9	2	7	3
Oilseed ^c	-	-	15	2	2	1
	427		1 161	209	407	260

Notes: ... Less than \$1m

(a) Sugar: raws and refined

(b) Fresh, frozen, chilled

(c) Cottonseed, soyabeans, groundnuts

Z\$1.00 is approximately US\$1.00. (December, 1983)

as a highly efficient medium through which Zimbabwe's cotton can be sold to spinners producing high-quality, high value products. The CMB has evolved, in co-operation with ZCC, a unique quality control system to ensure that seed cotton of consistent quality is ginned at one time to yield a lint of known and uniform specification (for a full description see Blackie, forthcoming).

Today cotton is the biggest smallholder cash crop in Zimbabwe. It is a high value crop which is suited to the remoter and more marginal rainfall areas of the country. The numbers of registered smallholders have grown from negligible proportions in the early 1960's to nearly 80 000 in 1983. Smallholder production now accounts for well over a third of the total crop. Current estimates suggest that a typical smallholder can earn a profit of Z\$200 per hectare from cotton production and many smallholders plant two or more hectares annually (Blackie, forthcoming). The expansion of the cotton industry and the development of the neglected smallholder areas of Zimbabwe are integrally linked.

The Cotton Marketing Board operations provide a valuable model for state intervention in an agricultural marketing system. Cotton producers play an active role in the development of the industry. They are represented on the CMB and also contribute directly to the cotton research and training programmes. Uniquely they run their own training centre to serve the needs of both large and small-scale farmers. The CMB defines its role as ensuring the efficient flow of harvested cotton from producer to the spinning mill. Given the size of the Zimbabwe crop by world standards and the continuing stockpile of unsold cotton held by some of the largest producers, it would be impossible for Zimbabwe to be other than a 'price-taker' in the

world market for average or low quality lints. The strategy of the CMB, therefore, has been to ensure that Zimbabwe can consistently meet the requirements of a specialised segment of the world market; that requiring lints of known and reliable characteristics for the production of high-quality yarns and which is prepared to pay premium prices to obtain such lints. The use of a single broker enables virtually a personalised service to be provided to spinners of such yarns. The broker, the Zimbabwe Cotton Corporation, knows both the Zimbabwe cotton industry and the appropriate buyers of lint in the highly competitive world market. The grading and quality control system is designed both to encourage producers to adopt better husbandry practices and to ensure that spinners get exactly the lint they require. The agronomic research programme and extension and training exercises are designed in close collaboration with marketing staff. There is a rapid and efficient transfer of market information from the consumer to the field.

The state, through the CMB, could control all aspects of the cotton marketing system from field research, to extension and credit to farmers, to eventual sale to the spinning mill. Experience, as reviewed in this paper, suggests the limitations of this route. The CMB approach has been to control the key points in the marketing system and to co-ordinate the activities of the other agencies involved in the production and disposal of cotton. The CMB, through its monopoly as certified cottonseed purchaser and distributor, controls the varieties of cotton grown in Zimbabwe but relies on private growers to produce certified seed under close supervision from the Board. As the sole buyer of cotton, the CMB ensures that all cotton lint offered for sale from Zimbabwe has been purchased and processed according to known and laid-down standards.

Agronomic research is undertaken by the Ministry of Agriculture under guidance from the Board, the growers and the Zimbabwe Cotton Corporation. The Board is actively involved in this research programme but does not control it. Similarly, extension and credit programmes are not operated by the Board although, through its involvement in the cotton industry, the Board's advice and assistance in the design of those programmes is sought by the agencies involved. The one exception is extension exercises explaining the work of the Board, particularly the grading and quality control systems, to farmers and others associated with the cotton industry.

Finally, the implementation of the grading and quality control system and the selling of cotton lint to overseas buyers is contracted to private industry. The Board retains control over these activities as the Zimbabwe Cotton Corporation acts only as the Board's agent, not as principal, in these activities. The selling of cotton, in the market segment within which Zimbabwe operates, is highly competitive. The considered use of a private firm to act as broker enables the Board to tap the flexibility of private enterprise within the policy environment of a state corporation. Under current arrangements, the ZCC has a clear incentive to maintain the integrity and efficiency of the grading and quality control system. The more reliable the system, the more straightforward becomes the activity of selling the lint. If grading and quality control became the responsibility of a third party, such as the CMB, the direct link between the activities of quality control and selling would be lost. The outcome would almost certainly be that Zimbabwe would lose its competitive edge in the high-quality, high-value yarn market and would need to dispose of its cotton in the lower-value and overcrowded market for average to low quality grades. The farmer, and the nation, would be poorer in consequence.

The CMB experience indicates that it is both possible and practical to use parastatal marketing successfully to develop and extend productive cash cropping in a national context. It also suggests that such intervention requires active producer involvement, progressive and innovative research programme and a well defined marketing strategy. Clearly, in dealing with a non-food commodity which is almost impossible to market other than through official channels, the CMB's task of directing the industry more straightforward than is the case with marketing agencies handling locally-traded food commodities. Nevertheless, the successful blend of private and public sector responsibilities in the production and marketing system for cotton will be used as a principle underlying suggestions below for the development of other agricultural delivery systems.

Food Crop Marketing : Maize Marketing in Eastern/Central Africa and Zimbabwe: Maize in Zimbabwe is traded mainly by a single parastatal, the Grain Marketing Board (GMB). It is the sole legal trader in maize in most of the commercial farming areas (known as Area A) and the residual purchaser in the remainder of the country (Area B). In Area B, which encompasses the communal farming areas, free local trade in maize is permitted.*

The GMB is responsible for handling, storage and disposal of maize and for the management of imports and exports of maize (the

* Agricultural land in Zimbabwe is divided into two main classes :

- 1) Commercial Farming Areas: 16,6 million hectares occupied mainly by white, large-scale farmers on a predominantly freehold basis. This area is currently being partly resettled by smallholders under a national land redistribution programme.
- 2) Communal Farming Areas: 16,3 million hectares occupied by black, smallholder producers under a variety of traditional tenure arrangements.

Board also handles other commodities which will not be considered in this paper). The GMB does not process maize but sells it, at a price controlled by government, to private sector millers. To keep maize meal prices low, these millers have been subsidised although the subsidy has recently been substantially reduced and the Zimbabwe government plans the total elimination of this subsidy in the future. Farmers deliver maize, either in bulk or in bags, to GMB receiving depots where a national price is paid according to grade. Most depots are along the line of rail or on the main tar roads but, since independence, a number of depots have been established in the communal lands. Communal land farmers can despatch maize to their nearest depot and receive the standard national price for the grade delivered. Alternatively they can sell it through a local co-operative or an 'approved buyer' (normally a rural trader licensed to purchase maize for the Board). In the last two instances, the co-operative or buyer charges a marketing fee for transporting the maize to the GMB.

The GMB maize procurement strategy has two important elements. Firstly, since farmers receive a uniform price for grain delivered to depots, the expansion of the depot network has increased the number of maize producers receiving the prescribed national price. Thus Zimbabwe is following the example of much of the rest of Africa in adopting a policy of a uniform national producer price for maize. Secondly, there is no seasonal element in maize pricing so that there is little incentive for either producers or processors to store maize. Consequently the GMB bears most of the costs and risks associated with grain storage between harvests.

The grain procurement policies of the GMB are typical of parastatal food grain marketing agencies in East and Central Africa.

Most countries in the region fix both consumer and producer prices for major food grains. To enforce such controlled prices, official marketing of these commodities is through a monopolistic and monopsonistic parastatal marketing board. These commodities are purchased by the board, transported to a central depot from where they are distributed for processing and distribution. This concept works well where, as in pre-independence Zimbabwe, the bulk of production is in the hands of a few, geographically concentrated large-scale producers who grow food staples as cash crops, and where the commodities concerned are mainly to be distributed amongst urban consumers. There is a one-way flow of the commodity from the countryside to the town. The marketing board can establish storage depots in the main producing areas and distribute grains to urban millers for processing as required. The limited number of producers and the large scale of their production precludes significant unofficial marketings where the board is operated with any reasonable degree of competence. Policing of fixed wholesale and retail prices in the urban areas, with their superior infrastructure and communications network, is relatively straightforward. Even so, experience has shown that estimates of future supply and demand levels cannot be made with adequate precision to enable a reasonably precise pricing policy to be adopted (Muir).

Once the smallholder becomes involved in this market system, there is a marked shift in the number and type of variables facing marketing policy makers. The nature of smallholder farming systems is that all households will attempt to meet their own food needs as a priority. Therefore, marketed food grains will be usually those surplus to household requirements. Food grain yields in Africa are highly influenced by rainfall and, given the variable rainfall patterns over the continent, surplus grain production from small-

holders will fluctuate markedly from year to year. The marketing board thus faces the problem of collecting small quantities of grain from large numbers of dispersed producers. Moreover, depending upon the distribution of rainfall, the surplus production areas may well shift from season to season.

Uniform pricing is usually justified on equity grounds; commonly it is assumed that paying producers a variable price for a uniform commodity is unfair. Yet Jansen has demonstrated that uniform pricing is inefficient in both equity and efficiency terms. The effect is to increase marketing costs substantially, to widen rather than narrow income differentials between farmers in rich and poor areas and to depress producer prices in the poorer, food-deficit regions. The lack of a seasonal element in maize pricing policy puts a further burden on the marketing board since producers naturally will sell their grain as soon as possible after harvest. The demand for transport, storage and processing is thus concentrated at the harvest season. This decreases the efficiency of utilisation of these scarce resources and increases marketing costs.

The infrastructural burden and associated expenses of operating a state grains marketing board often pushes the cost of the grain well above import parity levels. In order to reduce overhead costs per unit of grain produced, smallholders are encouraged or co-erced into marketing their grains. For example, villages in Tanzania have been required to sell up to 50 tonnes to the appropriate food crop authority so as to achieve targets set by central planners (United Republic of Tanzania, 1982 pp 6-7). But the smallholder is left vulnerable because he is forced to sell to the central authority. When local food deficits occur, processed

grains need to be transported back, by the same costly route, to the countryside. Not surprisingly, the smallholder is inherently suspicious of such a system. Amongst the factors which can interrupt the flow of the commodity either way are impassable roads, national transportation breakdowns, corruption and war. All these occur with frightening frequency and all involve influences well outside local communities' control. In consequence there is a major unofficial trade in food grains. Prices in this market, which is largely, but not exclusively rural, are substantially higher than official prices (Keeler et al.). Lele and Chandler point out three critical outcomes from such a marketing system :

- (1) There is no way in which production, consumption or stocks can be estimated. At best, only the transactions of the official marketing agency will be known.
- (2) Most food transactions take place on the unofficial market and are thus beyond national control.
- (3) Producers can market through both official and unofficial channels, they can barter crops or consume them within the household. Transfers between these various channels are frequent and there is no necessary correlation between changes in the activity of the official marketing agency and changes in production.

The state food marketing board, therefore, is in the position of being required to market highly variable levels of production of a commodity which is expensive to acquire and store. The nature of the commodity is such that storage beyond about two years renders it unfit for human consumption. Export puts a heavy strain on

limited national transport networks and, in any event, is only viable regionally. Yet even regional trade in food grains is difficult. Subsidised grains from the EEC and South Africa compete effectively for regional food markets.

The approach adopted by the GMB and other food procurement agencies works against a decentralised rural development policy. Producer prices are based on such criteria as cost of production on Treasury revenues. Maize yields, however, are highly sensitive to weather. Since the demand for maize is inelastic, a pricing policy in which seasonal factors were significant, would allow for lower yields due to a poor growing season to be compensated for by higher prices. Farm incomes, rather than prices, would then be stabilised.

State grain marketing boards typically fail to cater adequately for major regional food shortages. Heyer observed this in Kenya and the 1982/83 drought in Zimbabwe saw the GMB facing severe problems in moving maize to deficit areas in spite of an overall national surplus of maize. The GMB system, like many other similar systems in Africa, was designed with the implicit assumption that rural food supplies will be provided for by local production. Good rains and yields over the last few years have tended to mask the distributional inefficiencies of the marketing system. In a good year, the communal areas are largely self-sufficient and the absence of an efficient food supply system is not a major problem. In drought years it is disastrous. At current distribution margins, it is sub-economic for retailers in the remoter areas of the country to stock maize-meal. (Some, however, continue to do so in limited amounts as a 'loss-leader'.) Therefore these areas have no alternate source of supply when local food production fails. This situation may be aggravated by the incentive to sell maize to the GMB; some commentators

suggest producers may have retained less maize grain than normal with the intention of purchasing subsidised maize meal. Before the 1979/80 season, less than 16 per cent of smallholder maize was sold to the GMB, whereas in 1983 over a third of smallholder production was marketed through this route.

In the less remote areas, subsidised maize meal produced by the large urban millers puts local small mills out of business. Stanning estimated that 200 local mills had closed since independence since they were unable with urban millers receiving a subsidy of nearly Z\$100 per tonne. The multiplier effects from trade and processing grain thus almost entirely accrue to capital-intensive urban industry at the expense of decentralised development. Early 1983 saw Zimbabwe unable to meet the local demand for maize meal due to capacity problems in the urban mills (Jansen, 1982). Meantime, adequate stocks of maize were available nationally and small mills were closing due to lack of business.

The marketing system based on state/private sector co-operation can do much to overcome the problems in food grain marketing identified above. The GMB should define its role primarily as a food procurement agency for the urban areas. Its infrastructure is already well developed for this purpose and it can extend into those communal farming areas where maize as a cash crop makes economic sense. These areas are either in food surplus or have reasonable potential of becoming so. The evidence already suggests that there is a strong response to the provision of depots in potentially surplus areas whereas, even in good seasons, production from deficit areas fails even to cover depot running costs (Makoni). The problem facing Zimbabwe at present is not the procurement of adequate national maize supplies but improved and cheaper distribution to rural food deficit areas.

Recent studies suggest that rural traders generally offer a respectably efficient and reliable service (World Bank, 1981a). Zimbabwe has a well established network of rural stores, grain mills and bus services. The expansion of this network is essential to the maintenance of rural food supplies. Credit for groups or individuals to set up grinding mills, bulk storage facilities and, to purchase transport or to improve the road network is a possibility which will be enlarged on in the following section. This, however, is not a direct function of the GMB although through its active interest in maize production it could play a catalytic role. More directly, the GMB could significantly improve the distribution of maize together with aggregate consumer and producer welfare by relaxing controls on internal maize trading. Existing consumer pricing policies benefit mainly the urban consumer while the producer pricing policy destabilises farm incomes and actually increases the income gap between the rich and poor (Child, Jansen). The single channel marketing system concept, on which the GMB is based, assumes rural self-sufficiency in maize. The reality is that large areas of the country, for a variety of reasons, are likely to suffer from food deficits in a below average season. A single channel system is unable to serve these areas except at a very high cost. Child has undertaken a preliminary study of decontrolled maize marketing in Zimbabwe which indicates that there are major gains to be obtained, in terms both of equity and of rural consumer and producer welfare, by liberalising the trade in maize. His proposed system, which is based on experience in Kenya, India and Pakistan, has the defined objectives of ensuring that producers have access to maize markets and that consumers have food supplies at the least cost in terms of resource allocation efficiency.

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The system, as with the Cotton Marketing Board, is based on private/public sector co-ordination. The GMB would be directly involved in the following closely related activities :

- (1) Supply manipulation: The GMB would maintain pre-planting, floor and ceiling prices for maize. It would buy maize in surplus areas when the price fell to the floor price and sell in deficit areas when the price exceeded the ceiling price*. Thus the probability of extreme consumer and producer price fluctuations would be reduced, while the private sector would bear much of the financial burden of maize procurement and distribution. This would release public funds for other purposes, such as maintaining a strategic reserve or developing infrastructure. If necessary, a storage premium could also be introduced as an incentive for farmers to hold grain.
- (2) Maintaining a strategic reserve: Since the storage life of maize is only two years, a complete stock turnover needs to be made annually (Lele and Chandler). This makes the long-term storage of maize an expensive activity unattractive to the private sector. Further, the difficulties and costs involved in importing maize at short notice to landlocked Zimbabwe mean that the Zimbabwe government would be unlikely to relinquish control of such an important activity. Consequently, the GMB should maintain an adequate strategic reserve to see the nation through a poor cropping year.

* For a description and analysis of the price selling process, and the experience of such a system in Kenya, see Child.

- (3) Control of external maize trade: The GMB, in the national interest, would need to control the external trade in maize. It could, however, leave the actual trading to brokers as is done by the CMB.
- (4) Collection of information on maize production, distribution and consumption: To facilitate its own regulatory role, as well as assisting the efficient operation of the maize distribution system, the GMB would require the establishment of a national information system on maize production, prices and supplies.

This partially decontrolled system would eliminate much of the expensive rigidity inherent in the single channel grain board. It allows a legal free market to operate between nationally determined floor and ceiling prices. Government can use more of its scarce resources for development purposes and the bias against the rural poor is reduced. The private sector takes over a significant proportion of the trade in maize. As child shows in this regard, the private sector is the multitude of rural small traders, store-keepers and transport operators rather than urban operations. Consequently, the multiplier effect from trade in maize is retained in the countryside rather than the towns. Government's activities are confined to the management of an appropriate strategic reserve and the determination of appropriate floor and ceiling prices as well as controlling foreign trade and maintaining an efficient maize supply and demand information system. Thus the burden of maintaining an efficient maize supply and distribution system is more evenly shared between the public and private sectors.

Savings, mobilisation and rural credit: Agricultural credit in Zimbabwe is supplied by the parastatal Agricultural Finance Corporation (AFC), commercial and finance houses, banks and, in the case of cattle, the Cold Storage Commission. Prior to independence, there were a number of credit schemes for smallholders in Zimbabwe operated by private or charitable agencies (see Chavunduka for a review of agricultural credit in Zimbabwe). The AFC played a very minor role in the supply of smallholder credit. Since 1980, its role in smallholder lending has extended considerably with most loans being for seasonal finance. (Current projections indicate that some 92 per cent of the value of lending to smallholders will be for seasonal requirements.) The AFC encourages smallholders who require loans to form themselves into groups of between 20 and 30 members. Each loan group attends a pre-arranged meeting with AFC field staff where individual loan applications from the group members are considered. The loans are supplied mainly as seasonal inputs which are ordered and delivered by local co-operative unions. The intention of the AFC is that groups should develop to a stage where a single loan application for the whole group is submitted and the group is jointly and severally liable for repayment.

The AFC anticipates providing loans to some 60 000 smallholder producers by 1985 at a total cost of about Z\$17.1 million. The loans would be for particular input packages as recommended by AFC field staff. Ambitious though this programme is, it reaches only a minority of the 800 000 smallholders in Zimbabwe. The Zimbabwe government's concern for improving the availability of credit to the smallholder sector is well justified; the provision of credit is consistently identified as an important component of rural development strategy in Africa. Yet the delivery of seasonal credit to

smallholders is fraught with difficulties. As noted earlier, even the most efficient credit system will falter in the absence of timely delivery of appropriate inputs. African credit institutions have typically required a major input of subsidy from national funds to remain viable (Eicher and Baker). Eicher and Baker observe that many African smallholders treat public credit as a gift; consequently repayments are, at best, tardy. Adams persuasively argues that subsidised credit destroys the incentives for communities to mobilise their own savings and is an adequate substitute for local initiative. Credit institutions themselves have the standard problems of communication and management which afflict African parastatals (von Pischke).

Yet informal rural financial markets are an established part of the agrarian economies of sub-Saharan Africa. Rural people do consistently require, and make use of, credit. But their credit requirements reflect the priorities of Low's multi-sectoral household rather than the commercial farm household represented by standard farm management concepts. Credit is used only partially for agricultural purposes (see, for instance, Vasthoff; Miller; Osuntogun). Probably as a consequence, both public and private credit has generally been effectively channelled to the more accessible and larger-scale farmers (Eicher and Baker; Elliot). That it is possible to operate a credit system on a project scale has been demonstrated in a number of studies (see Lele; King). What is more elusive is the successful transfer of this experience to a national scale.

Yet surveys of the consumption patterns of the African rural household suggest that savings are significant feature of household economic behaviour. In Zimbabwe, Chimedza has documented the phenomenal growth of rural savings clubs since 1968. From a small beginning in 1968, there are, in 1983, some 4 000 clubs registered with

the umbrella Savings Development Movement (SDM). The SDM is a small voluntary group which co-ordinates and assists savings clubs movements throughout Zimbabwe. The clubs provide a mechanism whereby rural people, particularly women, can save small amounts of money for some future purpose. The clubs also provide a forum whereby alternative uses of savings can be discussed. The clubs often organise group labour for club projects. Chimedza observes that the clubs enable small producers organise the bulk purchasing of agricultural inputs. The club collects money for input requirements and places a single order resulting in cheaper and more timely delivery than occurs through other channels.

The evidence suggests that significant local savings can be mobilised through local organisations. These groups have demonstrated the capacity to organise the purchase and delivery of inputs. An appropriate strategy for a public agricultural credit institution, such as the AFC, could be to provide these groups with the training and support necessary to manage larger sums of money. It could also match local savings to increase the money supply in the countryside. While initially such matching sums might be grants, once the funds administered by a savings club exceeded a given limit, further matching funds would be normal commercial loans to the club from the central credit agency. In this manner, the savings clubs would evolve, with local control and initiative, into rural savings and loan societies. This strategy enables government to allocate credit to the smallholder sector without the responsibility of operating directly the entire credit system. Seasonal credit, with its problems of arranging timely deliveries and recovery of revenues from highly variable levels of output marketing, is largely spun-off to locally managed savings institutions. Public credit resources can then be devoted more to medium and long-term loans. For instance, Zimbabwe data suggest that seasonal credit in the absence of

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draught power may contribute little to productivity (Jackson, Blackie and de Swardt). Public credit could be usefully channelled into the provision of draught animals and the required associated technology of implements, dry-season feeding facilities and handling yards. Other loans could be for capital development items such as trucks, fencing, water supplies and, possibly, on a group basis, local infrastructural development. Inevitably, loans would be both larger, less frequent and are consequently more easily administered. The use of 'sweat equity' (the requirement that applicants provide a substantial input of labour to the proposed project) can help ensure that credit is not regarded as a free good by the community.

In this way, government makes use of existing money supply in the countryside but in a manner which avoids encouraging the exploitation of the rural poor by local moneylenders. The people are left with a real choice as to the best use of their savings. They are not forced into externally determined technological packages in order to simplify the administration of a central credit system. Rather, government now can target its rural lending at medium and long-term development in the countryside. Lending is largely on a normal commercial basis and can favour those activities identified by central planners as priorities.

Synthesis

African states hold the critical agricultural inputs of manpower, research, finance and macro-economic policy. They also, through their role as procurement agencies for export commodities and urban food supplies, guide the overall direction of the agricultural sector. With these powers, national governments dominate the evolution of the agricultural sector. Reynolds writes (p. 16) :

"The design of a system of institutions must steer between the paternalistic approach which treats rural people as passive and fatalistic, necessitating state intervention to improve their lot, and the populist approach which simply asks that politicians and bureaucrats stop blocking local endeavours. The paternalistic model is fatally flawed, for it expects passive recipients of its attention to become initiators and responsible citizens. The populist model ignores the strength of entrenched local interests, which only rules and controls from higher levels of administration can move."

Agricultural production in Eastern and Southern Africa is risky and difficult. As the quote above indicates, the design of institutions for the African environment involves a rather more sensitive approach to the development of smallholder agriculture than has been the case in the past. The agricultural models of both Western and Eastern ideologies are inappropriate to Africa's needs. The Western freehold concept evolved in combination with both extra-territorial expansion and national industrialisation. The Marxist collectivist approach to agriculture is rooted in an era when large-scale, mechanised farming offered the opportunity for thinly populated agrarian economies to move to an industrialised base. In Africa today, extra-territorial expansion to absorb those displaced as the result of introducing economically viable freehold properties is not a realistic option. Industrial expansion, in the absence of agricultural expansion, has proved unsustainable. The large-scale agricultural enterprise in Africa has failed to develop much beyond local enclaves, in consequence the emphasis on large-scale agriculture as an approach to national development has been highly exploitative of the rural poor.

Africa is a difficult agricultural environment. African governments

face a daunting array of rural development problems. The experience of the past few decades has conclusively shown that constraints of manpower, finance and environment are such as to prevent African governments from effectively centrally planning and managing their economies. On the other hand, the African smallholder has demonstrated the capacity to respond positively to policies that augment his welfare and to undermine those which work against him. The effective participation of the smallholder in agricultural policy determination is central to agrarian transformation of sub-Saharan Africa. The thesis of this paper is that a responsive and productive agricultural sector can be developed by using government to regulate rather than manage the delivery services essential to agricultural development. This concept fits the natural areas of specialisation of both the civil service and the private sector; it releases public funds and manpower for infrastructural development and maintenance rather than tying these scarce resources to costly public corporations. That such an approach is both practical and effective has been demonstrated by reference to Zimbabwe case studies.

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